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German-American scientific cooperation with positive mid-term results

Food poisoning, genome analysis, tattoo inks and innovative alternatives to animal testing in risk assessment: these current scientific topics were discussed intensively on 28 May 2024 during a visit by a delegation from the US Food and Drug Administration (FDA) to the German Federal Institute for Risk Assessment (BfR) in Berlin. The two institutions have been linked by a cooperation agreement since August 2021. The German-American cooperation was initially set to run for five years and has now reached its halfway point. The most recent meeting provided a forum both to look back at what had been achieved so far and to look ahead toward future cooperation. Both institutions are altogether positive in their assessment of the progress of the joint activities.

In the event of an outbreak of foodborne disease in the community, one of the most important measures that can be taken by consumer protection authorities in order to assess and limit the spread of contaminated food is the tracing of products along the supply chain. To this end, the BfR developed the FoodChain-Lab (FCL) software in 2011, a tool for collecting, analysing and visualising supply chain data. FCL has already been successfully used in several EU member states and made available to the FDA. As part of their continuing cooperation, the BfR and FDA are now planning to further develop the FCL software so that it can be used in conjunction with other systems and investigate food-borne outbreaks more quickly.

A related topic is genome sequencing, which can be used to identify the causative pathogens and link them to specific outbreaks. Pathogens (e.g. salmonella) that cannot be typed using standard serological tests due to certain genetic differences pose a particular challenge. To solve this problem, German and American experts from both institutions have been working on a software tool that is based on machine learning and can recognise such pathogens using sequencing data. In addition to further development of the tool, the next steps also include questions relating to the provision of analysis data from the EU and US.

Also on the agenda for the cooperation is the development of innovative concepts and methods for the risk assessment of chemicals. This includes the development of "organ-on-a-chip" models, i.e. methods for testing the mode of action of chemicals on the organism

without animal testing. The collaboration between the BfR and FDA in this field will, among other things, promote criteria for the regulatory acceptance of animal-free methods and the testing of complex mixtures.

The area of health risk assessment of chemicals also includes the topic of tattoo inks – in particular colour pigments and their short- and long-term effects in the body. In this still relatively new field of research, the BfR and the FDA are interested in the development of basic assessment criteria and methodological approaches for health risk assessment, which will be pursued further within the framework of the cooperation.

The FDA is a federal agency of the Department of Health and Human Services. It is a scientific regulatory agency responsible for the safety of domestically produced and imported food, cosmetics, drugs, biologics, medical devices and radiological products. The BfR works closely with the Center for Food Safety and Applied Nutrition (CFSAN), which is one of six product-focused centres of the US FDA.

About the BfR

The German Federal Institute for Risk Assessment (BfR) is a scientifically independent institution within the portfolio of the Federal Ministry of Food and Agriculture (BMEL) in Germany. The BfR advises the Federal Government and the States ('Laender') on questions of food, chemicals and product safety. The BfR conducts independent research on topics that are closely linked to its assessment tasks.

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